Lat 39.43657 Lon 122.96962

United States Department Of Agriculture | Forest Service | Shasta-Trinity National Forests

Reply To: 3420 Date: March 7, 1989

Subject: Biological Evaluation of Fuller's Grove Campground, Upper Lake Ranger District (Report No. N89-3)

To: Forest Supervisor, Mendocino National Forest

On January 24, 1989, Dave Schultz, Entomologist, and I visited Fuller's Grove Campground on Upper Lake RD with Glenn Westlund, Acting TMO, and Ron Stone, Resource Assistant, from the District. The concern was the tree mortality which has been occurring in the campground during the past year.

This is a new campground constructed by PG&E for use by the Forest Service. Most of the construction and tree removals have been completed. The campground has not been opened to the public.

A two-storied stand exists on the site. The upper story is medium sawtimber-sized Douglas-fir and ponderosa pine. The lower story is Douglas-fir and California black oak of pole and small sawtimber size. There are several large, predominant Douglas-firs scattered in the campground. Shrubs are limited, although considerable planting of native species was done following construction.

Several pest organisms were observed in the campground. A small infestation of western dwarf mistletoe (Arceuthobium campylopodum) is present in the ponderosa pine. None of the trees are being significantly affected at present. In a large, old Douglas-fir stump a conk of Phaeolus schweinitzii, cause of red-brown butt rot, was seen. There was extensive decay of the stump surface. This suggests the presence of this root and butt rot in some of the predominant Douglas-fir in the campground. At the east side of the campground along an old unused road, several declining and dying Douglas-firs were found to be infected by Verticicladiella wageneri, cause of black stain root disease. Only one infection pocket of this disease was identified. Many of the Douglas-firs are infected by, and have conks of Phellinus pini. This is a common heartrotting fungus of Douglas-fir and pines. A number of Douglas-fir had had part of their bark removed by woodpeckers. This suggested the presence of the flatheaded fir borer (Melanophila drummondi) in the inner bark and cambium. Removing some bark confirmed the presence of this insect and the extent of the infestation. Although these trees had green foliage, they have been killed by this insect which will become obvious as the weather warms. Other Douglas-firs in the area may also turn red this spring even though there are few indicators of attack at present.

to engraver beetles (Ips spp. in pine and Scolytus spp. in Douglas-fir) that may buildup and attack surrounding green trees. Proper disposal of this material in the spring will reduce this hazard.

3. Hazard Reduction. Trees in the campground would be evaluated for hazard potential prior to opening the campground. Necessary measures to reduce the hazard would be performed. This includes tree removal, limb removal, or site relocation.

Trees with conks of P. pini should be cored and the amount of sound wood in relation to tree diameter would be evaluated using Wagener's criteria (see enclosed). Trees without the minimum necessary sound wood should be removed. In some cases, the amount of decay at breast height where coring is done is not indicative of the amount of decay higher in the tree. The number of conks and their spacing on the bole needs to be evaluated to determine the probable amount of decay higher in the tree (see enclosed). In addition to conks, other indicators of the presence of red ring rot include swollen knots and punk knots. Trees with these indicators should also be evaluated for decay and hazard. Because many of the trees in the campground have been slow growing for years, at least a sample without external indicators should be cored to determine the presence of decay. These trees should be evaluated for hazard based on amount of decay the same as those with external indicators.

Removing more trees may have several effects on the residual stand. The stand will be further opened and expose trees to increased sun and wind. This may have adverse effects on some of the poor vigor trees. Trees with upper bole decay that were not detected in the survey may fail. Thinner-barked trees may develop sunscald and allow the entrance of decay organisms into the upper bole. Additional disturbances during this drought period may increase their susceptibility to fir flatheaded borer. If many trees are identified for removal, the desirability of the site as a campground may be reduced.

If you have questions about this evaluation or would like additional FPM assistance in Fuller's Grove Campground or other areas, please contact us at the Shasta-Trinity SO.

Gregg DeNitto
Forest Pathologist
Northern California FPM Service Area

Enclosure

Guidelines for Evaluating Douglas-firs for Hazard

Minimum safe standard for defective trees[1] applied as average thickness of outer sound wood of the trunk with center rot or hollow representing 70 percent of the total wood diameter, equivalient to one-third loss in strength.

Diameter of tree inside bark	Thickness of sound wood[2]	Diameter of tree inside bark	Thickness of sound wood[2]
Inches	Inches	Inches	Inches
16	2.5	44	6.5
20	3.0	48	7.0
24	3.5	52	8.0
28	4.0	56	8.5
32	4.5	60	9.0
36	5.5	64	9.5
40	6.0	68	10.0

[1] Assumes no modification is applicable.
[2] Figures rounded to the nearest half-inch.
From Wagener, 1963.

Relative Failure Probabilities of Douglas-fir with *Phellinus pini* Conks

Low failure probability

- Single conk in the upper bole

Medium failure probability

- Single conk in the lower bole
- Multiple conks separated by less than 10 feet on bole

High failure probability

- Multiple conks separated by more than 10 feet on bole

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WORKING PAPER

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March 13, 1989

Evaluation of Hazard Tree Conditions at Fuller's Grove Campground, Upper Lake RD, Mendocino NF

During a biological evaluation for pests on January 24, 1989, David Schultz, Entomologist, and I visited Fuller's Grove Campground with Glenn Westlund and Ron Stone, Upper Lake RD. Considerable efforts have taken place in the construction of this new campground. This includes removal of trees to improve stand health and decrease their failure potential.

What we observed is typical of an older Douglas-fir stand which has been overstocked for many years. A number of the Douglas-firs have conks of Phellinus pini, cause of red ring rot. Coring some of these trees revealed a narrow ring of sound wood surrounding a decayed center. None of the trees had sufficient sound wood to provide the minimum acceptable safety standard of a one-third loss in strength as suggested by Wagener. Additional trees, with and without conks, likely are of similar condition in the campground.

In a stagnated stand of this type, the rate of decay will often exceed the rate at which new wood is accumulated. The slow rate of growth also slows the growing over of dead branch stubs, a main avenue for infection by this fungus. This leads to high levels of infection in older, overstocked stands such as this.

Because they have been growing at close spacing, the trees have developed sparse crowns and spindly upper boles. Prior to the harvesting activity, the large number of stems provided mutual support. Trees in this situation often do not develop the structural qualities of trees grown in more open stands. With the thinning activity, the stems of the residual trees are now exposed to winds which they previously had not experienced. These new forces, combined with the weaker boles and the high incidence of trunk decay, may lead to stem breakage of trees for several years. Most breakage is expected in association with winter storms and heavy snows. This could damage physical improvements and would certainly cause higher cleanup costs in the spring. If the campground is open, property damage and injury to visitors could occur. It is possible that some breakage may occur during the primary use season. This would increase the probability of property damage or injury to visitors because of higher occupancy rates.

The stagnated condition of the vegetation at Fuller's Grove Campground will not improve. Most of the Douglas-firs are beyond the age when a reasonable response to release can be expected. The lack of crown will also inhibit a significant growth response. This means that decay will continue to be a problem in the future. With time, remaining boles will strengthen as they respond to their new conditions. This may take many years to occur, however.

In my opinion, stem breakage will occur in this campground for many years. Years with severe storms and wet snow can be expected to have more breakage. Although most failures will occur during the winter, some failures could occur at any time of the year. The length and period of time the campground is open will influence the hazard to visitors.

The canopy still is sufficiently closed that sunlight will not penetrate and stimulate growth of any trees, natural or planted, in the understory. Replacement trees will not develop in most areas of the campground, except where openings occur from tree mortality. The quality of the vegetation will deteriorate as older trees are lost and regeneration does not occur to replace them.

If it is decided that the Forest Service will manage this campground, including the vegetation, then a survey to discover hazardous trees should be completed prior to opening it to the public. Necessary treatments should also be implemented prior to opening. I am available to assist the District in any hazard tree evaluation.

During negotiations with PG&E on responsibilities for managing this campground, special conditions should be sought, if possible. Costs for annual cleanup of damaged trees should be paid by PG&E. Additional expenses of hazard tree management should also be their responsibility. Any measures to reduce Forest Service liability in cases of personal injury or property damage should be pursued.

This campground is situated in a location where the condition of the vegetation will continue to be a problem in the future. Measures should be considered to protect the public and to reduce future extra cost to the government. I am available to assist the District in any pest and hazard tree related efforts at Fuller's Grove.

/s/ Gregg DeNitto

Gregg DeNitto
Forest Pathologist
Northern CA FPM Service Area

SENT TO GIL EASTER, UPPER LAKE DISTRICT RANGER, VIA DG ON 3/13/89